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Bureau of Land Management

Slickhorn Allotment Water Wells

Monticello Field Office

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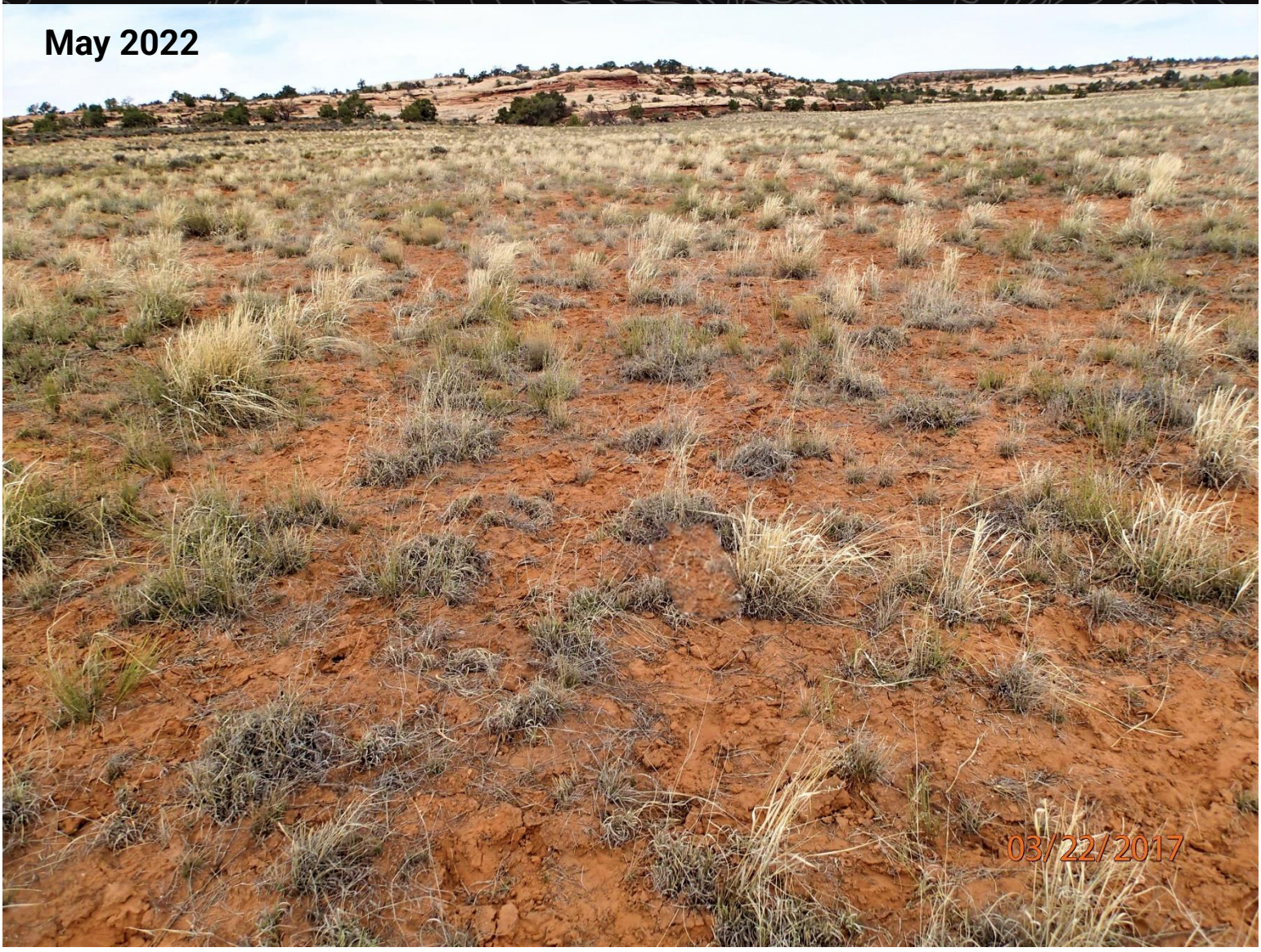

ENVIRONMENTAL ASSESSMENT: DOI-BLM-UT-Y020-2021-0008-EA

Mission Statement

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

DOI-BLM-UT-Y020-2021-0008-EA
SLICKHORN ALLOTMENT WATER WELLS

1.0 INTRODUCTION

1.1 Summary of Proposed Project

Kenneth Black (grazing permittee) and the Bureau of Land Management's (BLM) Monticello Field Office (MFO) propose drilling three water wells on the Slickhorn Allotment (Allotment). The current distribution of water resources is a known limiting factor for achieving proper livestock grazing distribution on this approximately 146,131-acre Allotment (BLM, 2020). The uneven distribution of water resources has resulted in reduced livestock distribution, which, in turn, has resulted in uneven utilization patterns. Improving distribution of livestock use, in part by improving the distribution of water wells throughout the Allotment, would enhance rangeland vegetation by providing greater opportunities to facilitate plant reproduction, recovery, vigor, and maintenance of desired plants. Neither livestock numbers nor Animal Unit Months (AUMs) would be increased as a result of the proposed water wells, and the existing number of authorized livestock would use the new water sources. The wells are proposed on or adjacent to pre-existing disturbed areas to minimize new surface disturbances and located to facilitate improved distribution of water within the pastures. The project area is located within the Bears Ears National Monument (BENM) on Cedar Mesa approximately 25 miles southwest of Blanding, Utah. See Appendix B for maps of the proposed project.

1.2 Purpose and Need for the Proposed Action

The need for the Proposed Action is to facilitate better distribution of livestock and to balance utilization of forage resources in the Slickhorn Allotment. Kenneth Black is the authorized grazing permit holder and applicant who has proposed these water wells. The BLM's underlying need is to respond to the applicant's request to improve the distribution of animals by providing additional water sources through the drilling and maintenance of water wells on BLM-administered public lands.

The purpose for the Proposed Action is to provide additional water sources, which are expected to distribute livestock more evenly throughout the Allotment, provide greater control of livestock movements, and allow more even use of the rangelands. As a result, the Proposed Action is expected to enhance rangeland vegetation by providing greater opportunities to facilitate plant reproduction, recovery, vigor, and maintenance of desired plants. Greater control and enhanced distribution of cattle provides more adaptive management opportunities and improved flexibility (e.g., pasture movements) for the orderly administration of the rangelands. These factors allow for the protection of objects found in BENM.

The BLM's decisions are whether to deny the proposed application, approve the application, or approve the application with modifications, and whether to enter into a Cooperative Range Improvement Agreement (CRIA, Form 4120-6) with the permittee for maintenance of the proposed wells. The BLM may include any terms, conditions, and stipulations determined appropriate to achieve management and resource condition objectives for the public lands (43 CFR 4130.3).

1.3 Identification of Issues

For the purpose of the BLM NEPA analysis, an "issue" is defined as a point of disagreement, debate, or dispute with a Proposed Action based on some anticipated environmental effect. Issues point to environmental effects and may lead to identification of design features incorporated into the Proposed Action or mitigation measures.

The BLM utilized an interdisciplinary team (IDT) and public outreach to identify potential impacts and issues. A Checklist was reviewed by BLM specialists to determine, for each resource, if the proposed action has a potential impact, no impact to a degree warranting analysis, or if the resource is not present (see Appendix A).

A description of the proposed Slickhorn Allotment Water Wells was posted on the internet at BLM's ePlanning website on November 23, 2020. The public has not provided any input or identified additional issues regarding the proposed wells in response to the posting.

The BLM mailed letters on May 15, 2020, to designated *Interested Publics* for livestock grazing on the Slickhorn Allotment. The letters consulted with them on the proposed range improvements and sought input into the action. The BLM received one comment letter dated January 7, 2022, jointly from Western Watersheds Project (WWP) and the Southern Utah Wilderness Alliance (SUWA).

As a result of this process to identify issues, the following are carried forward for further analysis in this document:

- Issue 1: Would the drilling and production of the water wells affect control of livestock distribution, movements, and grazing patterns?

- Issue 2: Would the construction of the range improvements and increasing available water to livestock disturb vegetation communities?

- Issue 3: Would the drilling and production of the water wells reduce spring flows and ground water levels in the project area?

- Issue 4: Would the development of the range improvements protect the Bears Ears National Monument objects identified in Proclamation 10285?

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

The development of the range of alternatives is based on input from the IDT, grazing permittee, Utah Grazing Improvement Program, and Interested Publics. Alternatives were developed considering management objectives, allotment configuration (relative to water and forage resource availability), and livestock management. Furthermore, proposed water well locations considered the availability of forage, avoiding conflicts with other resources such as cultural and recreation, access requirements, limiting new surface disturbance/footprint, availability of other water resources, and topography.

2.1 Alternative A – No Action

The No Action Alternative is the continuation of the current situation on the Allotment, meaning that the BLM would not authorize the construction of new water wells. Livestock control and movement would continue using existing water sources (e.g., reservoirs, water wells, springs, etc.). Grazing would continue and be managed in accordance with current management practices.

2.2 Alternative B – Proposed Action

The Proposed Action is drilling three water wells on the Slickhorn Allotment (146,131 total acres) in the vicinity of Polly Mesa and Brushy Flat. See below and attached maps for well locations.

- #1-Brushy Flat Well (T38S, R18E, Section 34, SE1/4)
- #2-Slickhorn Pasture Well (T39S, R16E, Section 22, SE1/4)
- #3-Polly Mesa Well (T39S, R17E, Section 26, NE1/4)

Proposed Wells #1 and #3 would be in the area of existing, abandoned drill holes, which have not been reclaimed. These were previously drilled for oil and/or gas exploration that consist of a constructed drill pad approximately 1.5 acres in size that used heavy machinery to clear vegetation (pinyons, junipers, sagebrush, etc.) and to level the surface. The water wells would be offset from the original drill hole or re-entered and located on the existing constructed pad. Well #2 would be drilled adjacent to an existing road on exposed slickrock. No new vegetation clearing and/or leveling (i.e., no bulldozing) of the pads would be required for drilling purposes.

These wells would be managed (i.e., turned on/off) to control livestock distribution patterns, grazing intensity, utilization of the forage, and to provide more effectively greater livestock grazing rotation opportunities. It is anticipated the wells would provide water at a rate of four gallons per minute (gpm) to about 100 cows over a 2-month period during the grazing season (10/16 – 06/15).

Solar panels, pump jack, and water troughs would be placed adjacent to the drill hole on the previously disturbed pad to provide water for livestock. A small earthen reservoir may be built, or a pipeline trenched into an adjacent drainage, to serve as an overflow for the water trough. The footprint of each well would be approximately 0.25 acres once completed, thus totaling 0.75 acres for all three wells.

Access to the proposed range improvements would require no new road construction. Existing roads would require no upgrading or improvement for equipment, except for the minimum necessary within the original route's footprint to fix washouts, remove impediments, etc. Travel by drilling equipment to the proposed water well sites would originate from Highway 261 and traverse to pre-existing roads designated as open in the Monticello Travel Management Plan (TMP) for motorized use. Access roads to Wells #1 and #3 were constructed to access the original drill hole sites, at which point the roads end. Access to Well #1 would be from BLM Road #D4228, Well #2 is off of BLM Road #D4319, and Well #3 is along BLM Road # D0045. All work would be completed to BLM specification as outlined in BLM Handbooks 1741-2 (Water Developments-BLM, 1990).

Drilling activities for water greater than 30 feet deep, as proposed, are regulated by the State Engineer of Utah, through the Division of Water Rights, who are responsible for licensing require-

ments and well construction criteria and the promulgation of the Administrative Rules for Water Well Drills and Pump Installers. Specifically, the drilling, construction, deepening, repair, renovation, replacement, cleaning, development, abandonment, and pump installation/repair of the following well types is regulated by the Administrative Rules for Water Wells and the applicable work must be completed by a licensed water well driller or licensed pump installer. If the drilled hole is dry, it would be plugged and abandoned to State of Utah Standards and requirements (Utah, 2018).

At each water well location a 5.0-to-6.5-inch hole would be drilled at a depth of approximately 400 to 800 feet and a 4-inch casing installed. Equipment likely to be used include a truck mounted drill rig (e.g., 8x8 Oshkosh HEMTT), support vehicle / crane truck hauling fuel and water and pulling an air compressor (e.g., 6x6 army surplus vehicle), and a pickup or utility vehicle (UTV) to haul personnel. It is anticipated that one trip with ingress and egress would occur to each well location with the drill rig and support vehicle. Motorized travel may occur each day of drilling to haul personnel. Drilling each well would take four days under normal operations.

A portion (half or greater) of the final water right would be held in the name of the BLM in conformance with the State of Utah's Water Right Law and BLM regulations and policies (Utah, 2013). This agreement that the applicant agrees to place a portion of the water right in the BLM's name would be outlined in a BLM Cooperative Range Improvement Agreement (CRIA) (Form 4120-6).

Drilling, installation of troughs/solar panels, and future maintenance of the proposed water wells would be the responsibility of the grazing permittee pursuant to a BLM CRIA signed prior to construction. Maintenance consists of keeping the proposed wells in a functional condition. This would likely require periodic annual inspections using existing roads designated in the TMP, resetting/replacing troughs, cleaning overflow reservoir, replacing solar panels/pump, reworking wells/casing, etc. This would require periodic motorized access to the well site, possibly with heavy equipment (e.g., drill rig, backhoe). All maintenance activities would be done within the original footprint of the well site approximately every 5 to 10 years.

The BLM gives priority to improvement projects with potential for positive economic returns on public investment. Funding would be likely through State of Utah programs (e.g., Grazing Improvement Program and Utah Watershed Restoration Initiative) and by the applicant, therefore BLM participation of federal public funds is minimal in relation to the positive economic returns that the water wells would provide on the dry semi-desert environment of the Allotment.

2.2.1 Design Features:

Additional design features that are not included in the description above:

- Water wells would not be located in areas that are consistently used for dispersed camping.
- No vegetation clearing and/or leveling (i.e., no bulldozing) of the pads.
- Water troughs would have wildlife escape ramps.
- A float would be installed on the well's water troughs to prevent overflow or overflows would be captured in an adjacent reservoir.

- The water well would only be operated during the authorized grazing season to protect aquifer levels and conserve water.
- The completed water well would be cased, which would protect surface water resources.
- Pump tests would be conducted after the well is drilled to record water levels, drawdown, and hydraulic properties of the aquifer.
- No camping sign(s) would be posted at the wells by the BLM to reduce potential conflicts between recreationists and livestock operations.
- The applicant would only drive and turn vehicles only on designated routes within the existing disturbances.
- Access routes would not be upgraded or improved for drilling equipment, except for the minimum necessary within the original route's footprint to fix site-specific washouts, etc.
- Reclamation/reseeding using a native seed mix may be implemented by the applicant depending on the extent of impacts after construction as determined by the BLM.
- Equipment used for construction activities would be power washed prior to work to help control the potential for noxious weeds.
- Proposed infrastructure would be painted in neutral colors to reduce visual contrast with the natural topography and landscape, as determined by the BLM in coordination with the applicant.
- If solar panels are mobile, they would be mounted on a purpose-built trailer (e.g., ATV style) that is low profile and not brightly colored.
- If fossils and/or cultural resources (including human remains) are encountered during the implementation of the proposed action, work would stop, MFO would be contacted within two working days, and the BLM would provide guidance on how to proceed.
- The Brushy Flat Well (#1) is within Crucial Deer Winter Range. To prevent undue stress to Wintering Deer, there would be no surface disturbing actions from November 15 to April 15 for this well.

2.3 Alternatives Considered but Excluded from Detailed Analysis

2.3.1 Use of Riders

An alternative was considered to use additional horse riders to increase livestock distribution on the Slickhorn Allotment. This alternative was eliminated because it is ineffective. Adaptive management, including use of riders, is already being implemented to herd, trail, and distribute cattle. In addition, water is essential for livestock survival which makes additional riding ineffective to distribute cattle into places that lack water, such as in areas with proposed water wells.

2.4 Conformance with BLM Land Use Plan(s)

The Slickhorn Allotment is located entirely within BENM but is managed under two Land Use Plans (LUPs). These plans include the MFO Resource Management Plan (RMP) as amended and approved in November of 2008, and the BENM Monument Management Plan (MMP), approved in February 2020 (MMP, 2020). This is because the BENM MMP only includes designated lands under Presidential Proclamation 9681 dated December 2017 that modified BENM boundaries. BENM was later expanded to the restored boundaries under Proclamation 10285 of October 2021 (see Section 2.5). The Slickhorn Allotment contains approximately 146,131 total acres, of which 128,694 acres are BLM. Of these BLM acres, approximately 2,614 BLM acres are managed under

the BENM MMP, and 126,080 BLM acres are administered under the MFO RMP. The project area of the proposed action is managed under the MFO RMP.

The Proposed Action is in conformance with the MFO Resource Management Plan (RMP), approved in November of 2008 (RMP, 2008). The 2008 RMP recognized livestock grazing and developments as an appropriate use of public lands. The goals, objectives, and management directions that allow for the proposed action are located at pages 75-78 in the MFO RMP Record of Decision (ROD). The RMP identifies the Slickhorn Allotment as being available for livestock grazing (RMP, 2008, Appendix F). Associated with livestock grazing are range improvements (e.g., reservoirs, fences, wells, etc.), such as the Proposed Action, which facilitate grazing management.

The Slickhorn Allotment is categorized as "I - Improve" in the RMP, which states that "there is potential for positive economic return on public investment," and "these allotments have potential to improve, or have conflicts that can be resolved through changes in grazing management or investment in range improvement projects."

The Proposed Action is also in conformance with the BENM MMP (MMP, 2020). The MMP recognized livestock grazing and developments as an appropriate use of public lands. The MMP includes goals and objectives that allow for the proposed action, such as "maintain and improve existing range improvements, and consider new range improvements to allow for effective range management." Grazing Management Action #4 states to "develop offsite water sources where practicable to reduce impacts to riparian areas, seeps, and springs, and improve and increase grazing distribution within and across allotments", which this proposal helps implement (MMP, 2020).

Through the (IDT) review process, it has been determined that the Proposed Action would not conflict with other resource decisions throughout the plan (See Appendix A).

2.5 Presidential Proclamation 10285

On October 8, 2021, President Joseph Biden signed Presidential Proclamation 10285 restoring the boundaries and conditions of BENM provided by Proclamation 9558, as well as the 11,200 acres added by Proclamation 9681. The Proclamation also provides specific management direction for livestock grazing as follows:

- "The Secretaries shall manage livestock grazing as authorized under existing permits or leases, and subject to appropriate terms and conditions in accordance with existing laws and regulations, consistent with the care and management of the objects identified above and in Proclamation 9558".

As a result of the analysis in Section 3.5 of this EA, the BLM has concluded that the proposed actions are in conformance with Presidential Proclamation 10285 and provides for the protection of the BENM's objects. The potential impacts, both beneficial and adverse, of the proposed action to objects identified in the Proclamation are considered in the Affected Environment and Environmental Consequences section of this EA.

2.6 Relationship to Statutes, Regulations, or Other Plans

The Proposed Action would comply with the following laws and regulations:

- Taylor Grazing Act (TGA) of 1934
- Federal Land Policy and Management Act (FLPMA) of 1978
- Public Rangeland Improvement Act (PRIA) of 1978
- Endangered Species Act (ESA) of 1973 as amended
- Section 106 of the National Historic Preservation Act (NHPA), 1966, as amended
- 43 Code of Federal Regulations (CFR) 4100 Grazing Administration-Exclusive of Alaska

The Proposed Action would comply with the federal regulations of 43 CFR 4120.3 – Range Improvements. This regulation states, in part:

- "Range improvements shall be installed, maintained, and/or modified on the public lands, or removed from these lands, in a manner consistent with multiple-use management."

- "Prior to installing, using, maintaining, and/or modifying range improvements on public lands, permittees or lessees shall have entered into a cooperative range improvement agreement with the BLM or must have an approved range improvement permit."

- "A range improvement permit or cooperative range improvement agreement does not convey to the permittee or cooperator any right, title, or interest in any lands or resources held by the United States."

- "Proposed range improvement projects shall be reviewed in accordance with the requirements of the National Environmental Policy Act of 1969."

The proposed water wells would abide by Water Jurisdiction Amendments from Utah Senate Bill 274 (Utah, 2014). Also, the action would comply with Administrative Rules for Water Wells (R655-4 UAC) in the State of Utah (Utah, 2018), such as:

- Water wells are regulated by the State Engineer and must be constructed by a currently licensed Utah Licensed Well Driller.

- A Utah Licensed Well Driller or a Utah Licensed Pump Installer must perform installation and repair of pumps on wells regulated by the State Engineer.

- The State Engineer, through the Division of Water Rights, is responsible for licensing requirements and well construction criteria and the promulgation of the Administrative Rules for Water Well Drillers and Pump Installers.

- Specifically, the drilling, construction, deepening, repair, renovation, replacement, cleaning, development, abandonment, and pump installation/repair of certain well types, if greater than 30 feet deep, is regulated by the Administrative Rules for Water Wells and the applicable work must be completed by a licensed water well driller or licensed pump installer.

Additionally, livestock grazing, and developments are recognized as an appropriate use of public lands in the MFO RMP which provides management direction and allows for multiple uses. BLM is considering approval of the applicant's requested water wells because the activity is an integral part of BLM's range program under the authority of the TGA and FLPMA, which direct public lands to be managed for multiple uses and sustained yield.

The proposal would be consistent with the 2017 San Juan County Resource Management Plan (SJCRMP, 2017). The SJCRMP states that BLM administered lands be managed under principles of "multiple-use and sustained yield" and recognizes livestock grazing as one of the multiple uses. The plan goes on to state that "livestock and grazing in San Juan County is important for the natural, cultural, social, and economics benefits it provides…" and that "rangeland is an important part of the agricultural economy in San Juan County." An objective of the plan states "the livestock industry is a viable and sustainable component of the County's economy, heritage, and culture." Policies of the plan include "support the management of the range resource within its productive capabilities for grazing and browsing animals in harmony with other resources and activities to provide sustained yield and improvement of the forage resource…", "support a "no net loss" in active livestock AUMs as supported by range science…", and "support the implementation of rangeland improvement projects…".

The proposed action is consistent with the State of Utah Resource Management Plan (Utah, 2018a). It states, "grazing is one of the earliest and most important uses of public lands in Utah" and recognizes the "importance of public land grazing to individual livestock producers and the industry as whole." In addition, the plan outlines "Utah ranchers are challenged with limited water and watering facilities on rangelands, especially in grazing areas in the lower elevations with little precipitation." Objectives of this plan include "improve vegetative health on public and private lands through range improvements…"

The Proposed Action is consistent with the Fundamentals of Rangeland Heath and Utah's Standards and Guidelines for Healthy Rangelands because it enables grazing management practices that improve public land conditions. Guideline 1(h) states to "give priority to rangeland improvement projects and land treatments that offer the best opportunity for achieving Standards" (BLM, 1997).

The EA is prepared in accordance with NEPA and in compliance with all applicable statues, regulations, and executive orders.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) as identified in the Interdisciplinary Team Checklist found in Appendix A and presented in Chapter 1 of this assessment.

3.1 General Setting

The project area is situated near Brushy Flat and Polly Mesa near Highway 261 within the physiographic region is part of the Colorado Plateau. The area has rugged topography consisting of rolling terrain bisected by canyons and mesas that has been structurally uplifted (NRCS, 2018). The predominant ecological sites are Upland Shallow Loam (Pinyon-Juniper) and Semidesert Shallow Sandy Loam (Juniper-Pinyon) (NRCS, 2020a). Elevation ranges from approximately

6,600 feet at Well #1, 5550 feet at Well #2, and 6,200 feet at Well #3. Average precipitation for the water year (October – September) varies from 10.72" at the nearby BLM Muley Point Rain Gauge (6,370 feet) and 14.45" at the BLM Maverick Point Rain Gauge (6,880 feet) (BLM, 2020).

3.2 Issue 1: Would the drilling and production of the water wells affect control of livestock distribution, movements, and grazing patterns?

3.2.1 Affected Environment (Livestock)

Proposed Well #1 is located in the Flats Pasture (48,500 total acres), Well #2 is within the Slickhorn Pasture (25,029 total acres), and Well #3 is found in the Pollys Mesa Pasture (38,496 total acres) of the Allotment (see Map #2). These pastures combined contain approximately 112,025 total acres out of the 146,131 total Allotment acres. These pastures serve as fall, winter, and spring range for livestock grazing. The Allotment is a vast expanse of broken topography that is not easily delineated into tight control and/or pasture movement due to the sheer scale of the area.

The Allotment's grazing season is from October 16 to June 15 with 265 cows at 85% Public Land (PL) for 1,795 Active AUMs. These Slickhorn Pastures currently have approximately 24 water developments (e.g., reservoirs, springs, etc.), which equates to about one water development for approximately every 4,668 acres (see Map #2). There are no water wells on BLM lands in these pastures and many of the existing waters improvements have proven to be unreliable for livestock needs, because they do not adequately retain water, reservoirs are washed out or filled with sediment, do not produce sufficient amounts of water, and/or are reliant on rainfall which is not dependable such as in the current drought. This shows water availability is often the limiting factor for livestock use and distribution. These situations do not provide a reliable source of water across the pastures throughout the permitted grazing period. This necessitates the need for the permittee to haul water to further distribute livestock and meet water intake demands throughout the permitted grazing period. The availability of water aids in livestock distribution, more even utilization of the forage resource, and adaptive management opportunities. Water wells are cost-effective water developments (BLM, 1990) that are more reliable than stock ponds. Water wells on adjacent allotments have shown to be effective in providing reliable, clean, and consistent water to livestock.

Rangelands associated with the project area provide grazing opportunities for livestock. Grasses, primarily Indian ricegrass, sand dropseed, and galleta grass, provide good forage for livestock, however these species are not always abundant. Forage composition and annual production depend largely on yearly precipitation amounts and thus provide challenges for those making livestock grazing management decisions. This site also often lacks sufficient upland water sources, which can influence the area's suitability for livestock grazing (NRCS, 2020). Livestock water is a key element for livestock to effectively use these renewable forage resources (i.e., grasses) and its presence allows for the rangelands to be suitable for livestock grazing.

Providing livestock adequate water is essential for animal health. Consumption of water by livestock is influenced by various factors, such as age, rate of gain, lactation, activity, forage, and environmental temperature. Water quality and cleanliness affect water intake and livestock production (NDSU, 2015).

The BLM *Evaluation Report for Trend and Monitoring on the Slickhorn Allotment* dated October 20, 2020, states that "Water is a limiting factor, thus the permittee hauls water for livestock. This

allows for greater control of cattle and aids in livestock distribution and utilization patterns within the allotment" (BLM, 2020). This lack of reliable and constant water sources can account for uneven use of rangelands by livestock as indicated by utilization data and general observations, which is particularly problematic in an arid and desert environment found on the Allotment (Holechek, 2001).

Severe droughts occurred in 2018 to 2022, with San Juan County and the State of Utah declaring a Drought Emergency. These situations have limited available water to livestock across the allotment that negatively affects livestock distribution, movement, and grazing management.

The MFO RMP classifies the Slickhorn Allotment as "Improve" where appropriate management actions will be applied on the allotment to resolve issues and concerns and meet objectives. As such, opportunities exist for positive economic return from public investments (RMP, 2008).

Mr. Black (permittee) has a good record with BLM in controlling livestock, maintaining existing range improvements (e.g., fences, reservoirs, corrals, etc.), and using adaptive management for improved livestock grazing practices and range conditions. The permittee actively chose the location and layout of the proposed well sites in order to improve grazing management and distribution. He is committed to the proposal and has invested resources for its development.

3.2.2 Environmental Impacts (Livestock) – No Action Alternative

The BLM would not authorize Kenneth Black (permittee) to drill three water wells on BLM administered lands, nor would there be a need to maintain them. This would eliminate the opportunity for additional water sources in the uplands. Livestock grazing would continue as currently authorized. The grazing permittee would continue to haul water across the Allotment to help distribute livestock grazing, and incur cost associated with this. No ground water withdrawal associated with the proposed wells would occur. The opportunities for further adaptive livestock management under the Proposed Action would be eliminated. The improved control of livestock movement and distribution as a result of water availability/location would not occur. In addition, the opportunity to improve livestock distribution and the consequent improvement in long-term vegetative condition over the entire allotment would not be realized. Plant habitat would not have additional protection provided by improved adaptive management. The opportunity for increased efficiency in livestock gains realized from better management of the grazing system would not be realized. Also, the opportunities for positive economic return from public investments on the Allotment would be foregone.

3.2.3 Environmental Impacts – Proposed Action (Livestock)

The proposed water wells would serve existing permitted livestock and there are no reasonably foreseeable factors that would increase AUMs or livestock numbers as a result of this proposal. The action would provide three additional water sources to the 24 existing water developments on the Flats, Pollys, and Slickhorn Pastures (112,025 total acres). Funding would likely be through State of Utah programs (e.g., Grazing Improvement Program and Utah Watershed Restoration Initiative) and by the applicant, therefore BLM participation of federal public funds is minimal in relation to the positive economic returns that the water wells would provide on the dry semi-desert environment of the Allotment.

These wells would provide a reliable source of water during the grazing period and could be managed (i.e., turned on/off) to more effectively control livestock distribution patterns, grazing intensity, utilization of the forage, and provide greater livestock grazing rotation opportunities. In addition, permanent and reliable water from wells would reduce the need for the grazing permittee to haul water to livestock, which is costly and time consuming. Existing number of authorized livestock would use the new water sources.

Water is often the limiting factor for livestock grazing as found in the *Evaluation Report for Range Trend and Monitoring on the Slickhorn Allotment* (BLM, 2020). Currently, there is only one water development for approximately every 4,668 acres in the Flats, Slickhorn, and Pollys Pastures. Under the proposed three new water wells, there would be one water development for approximately every 4,149 acres. Enhancing distribution and productivity of the permitted 265 cows by authorizing additional water sources allows greater opportunities to maintain and/or improve vegetation conditions (see Vegetation section of this EA). More uniform distribution of livestock grazing allows for more even utilization of the rangelands (Holecheck, 2001). These factors would increase adaptive livestock management opportunities (e.g., rotation of specific areas grazed by livestock in response to results of forage utilization monitoring) by the applicant/grazing permittee to further enable livestock pasture movements and improved control of grazing patterns and forage use level.

The additional wells would decrease travel distance by livestock to water, which in turn decreases energy expenditures by the animal that can otherwise go into production and increase grazing and resting times. This can result in improved livestock performance, productivity, and increased efficiency from better livestock management opportunities and greater distribution provided by the proposed action's additional water sources (Holechek, 2001).

It is anticipated that each proposed well could provide water for approximately 100 cows for 2 months, with a cow consuming about ten gallons of water per day (NDSU, 2015). Over this period, livestock would drink about 60,800 gallons of water. It is estimated that the well could pump water on average for 5.5 hours per day at a rate of four gallons per minute. This would total 80,256 gallons of ground water withdrawal for the 2-month grazing period for each well. These estimates show that the proposed wells could produce clean water in excess of the livestock demand. Yet excess water beyond livestock demands would not be pumped from the wells, because a float would stop flows once the trough is full or captured in the overflow reservoir for livestock and wildlife use. The impacts to livestock grazing would include enhanced livestock health and production further supporting expectations that more even forage utilization rates would be achieved (NDSU, 2015).

Proposed water wells would provide clean and reliable water, which is particularly beneficial during periods of drought when water is limited, such as the Allotment is currently experiencing. This dependable water for livestock would further enhance livestock distribution and allow for greater adaptive livestock management, such as pasture movements and rotation options, during periods of drought.

The benefits to livestock management that the current range improvements (e.g., water wells, earthen reservoirs, spring developments, corrals, fences, etc.) provide to the entire Allotment (not only the three pastures where the proposed wells are located) would continue and be effective in providing for the improvement of rangeland conditions with modified livestock distribution pat-

terns and control. This includes SITLA lands encompassed by the Allotment. A water well for livestock was drilled in 2020 on SITLA lands in the Point Lookout Pasture which would have similar impacts to those described above. A fence located on one of the tributaries of Slickhorn canyon and a fence to prevent livestock grazing in Kane Gulch, as well as three additional water wells, are a reasonably foreseeable action within the Slickhorn allotment. The fences would not increase distribution of livestock but are designed to reduce conflicts with recreational uses and to help effectively implement decisions in the RMP that made these canyons unviable to livestock grazing. The three water wells and any future additional water resources (e.g., water wells, reservoirs) would also enhance livestock distribution and control even further on the Slickhorn Allotment.

The permittee has committed to putting 50% of the water rights associated with the wells in the name of the United States Government (BLM) with livestock grazing as the beneficial use. This would more effectively allow for the orderly administration by the BLM of the Grazing Permit (#4306626) and rangelands on the Allotment (#06834). Potential negative impacts to livestock grazing and the BLM permit holder / applicant are drilling a dry hole that provides no water. This would lead to financial costs and time spent with no benefit. Producing water wells would also require additional future maintenance by the applicant to keep them in a functional condition.

3.3 Issue 2: Would well construction and increasing available water to livestock disturb vegetation communities?

3.3.1 Affected Environment (Vegetation)

Associated ecological sites of the project are predominantly an Upland Shallow Loam (Pinyon-Juniper) and Semidesert Shallow Sandy Loam (Juniper-Pinyon) (NRCS, 2020a). Vegetation associated with these sites typically consists of woodlands of pinyons (*Pinus edulis*) and Utah junipers (*Juniperus osteosperma*). Intermixed within these woodlands are shrubs such as sagebrush (*Artemisia tridentata*), Mormon tea (*Ephedra torreyanna* and *Ephedra virdis*), blackbrush (*Coleogyne ramosissima),* four-wing saltbush (*Atriplex canescens*), broom snakeweed (*Gutierrezia sarothrae),* and rabbitbrush (*Chrysothamnus viscidiflorus*). Understory plants generally consist of various warm and cool season grasses such as galleta grass (*Hilaria jamesii*), western wheatgrass (*Agropyron smithii*), Indian ricegrass (*Oryzopsis hymenoides*), needle-and-thread (*Stipa comata*), and sand dropseed (*Sporobolus cryptandrus*). In average years, plants begin growth in early March and growth ends in mid-October (NRCS, 2018).

Vegetation at the proposed Wells #1 and #3 has been previously disturbed because they are located on abandoned well pads with native soils that have not been reclaimed or reseeded. These old pads generally consist of opportunistic native vegetation, such as rabbitbrush, sagebrush, four-wing saltbush, broom snakeweed, young junipers, and a few miscellaneous grasses.

Proposed Well #2 is located on a rock outcrop within a Semidesert Shallow Sandy Loam ecological site. Vegetation is naturally sparse at this location and consist of junipers, blackbrush, four-wing saltbush, and Indian ricegrass. It would be located immediately adjacent to the existing BLM Road # D4319 that is open for motorized travel in the TMP.

The MFO RMP guideline for forage utilization is 50%. Studies on range utilization of key plant species in the Slickhorn Allotment indicate an average rate of utilization at 36% (light, 21-40%),

which is often below the MFO RMP management guideline (BLM, 2020). Yet there are periods of heavy utilization near existing water sources. In addition, there are rangelands that receive sporadic, little, or no utilization by livestock due to a lack of available and reliable waters because no natural water sources exist or current range improvements do not have consistent water, such as near the sites of the proposed water wells.

Long-term vegetation monitoring studies have been established across the Allotment, including in the vicinity of the Proposed Action in the Flats, Slickhorn, and Pollys Pastures. These nested-frequency studies are established in Key Areas, which are representative portions of a rangeland, selected for their ability to demonstrate changes within the plant community and variations in rangeland health conditions for a larger ecological site.

The 2020 monitoring report for the Allotment shows that the trend summary of key plant species rated as "stable" trend in the frequency of occurrence for key plant species. In the north portion of the Allotment (e.g., Flats Pasture) the key plant species is crested wheatgrass and it remains dominant, which is a non-native species that was seeded into these areas after treatment in the 1960's, with a minor component of native herbaceous plants. Crested wheatgrass is generally stable in these areas. Sagebrush has generally increased in frequency in these formerly treated areas. Young pinyon and juniper trees are partially encroaching / re-establishing these formerly treated sites.

In the southern portion of the Allotment (e.g., Slickhorn and Pollys Pastures) native vegetation are the key plants, where generally cool season grasses (e.g., Indian ricegrass and needle-and-thread) are stable to up in their frequency of occurrence; and warm season grasses (e.g., Galleta and Sand Dropseed) have decreased in numbers. Shrubs (e.g., sagebrush, Mormon tea) have increased their presence in recent years.

A severe drought from 2018 to 2022, and lack of sufficient monsoon rains in 2019 and 2020, have contributed to the current situation that has hindered plant viability, frequency, development, and growth. San Juan County declared a Drought Emergency in 2020.

3.3.2 Environmental Impacts – No Action (Vegetation)

The No Action Alternative is the continuation of the current situation; therefore, the proposed three water wells would not be drilled. There would be no new impacts (e.g., trampling/crushing of plants) to vegetation beyond those that are already occurring as a result of livestock densely congregating in certain portions of the Allotment. It is estimated there would be 0.75 acres of disturbance associated with the proposed wells that would not occur.

The 146,131 total acres on the Slickhorn Allotment, or 17,390 acres with anticipated benefits, would not be further served by water in areas currently lacking reliable water sources. Not improving the distribution of livestock under the No Action Alternative would result in continual reliance by cattle on existing water sources for control, which can concentrate cattle in these areas and cause unbalanced utilization of vegetation by livestock near water, and under-utilization in areas lacking water. Excessive utilization can negatively affect plant habitats because it does not meet the physiological requirements of desired plants. This is because leaf defoliation beyond 50% hinders root growth and substantially reduces grass production (Dietz, 1989). In addition, high grazing of plant material terminates photosynthetic abilities and can ultimately kill the plant (Holechek

et al., 2001). Therefore, minimal change in vegetation conditions would be expected outside of any climatic variations. Multiple use of the rangelands would continue.

The No Action Alternative might incentivize the permittee to drill additional water wells on State Institutional Trust Land Administration (SITLA) lands or private in the Slickhorn Allotment, which may cluster water sources and converge livestock use around them. This potential over concentration of livestock could negatively impact rangeland and vegetation conditions on STILA lands and adjacent BLM administered rangelands. Potential direct negative impacts to vegetation may include over utilization of forage resources by livestock around these SITLA water source because of improper proper cattle distribution.

3.3.3 Environmental Impacts – Proposed Action (Vegetation)

Impacts would occur to vegetation associated with accessing and drilling the proposed three water wells on public rangelands in the Allotment. Two of wells (#1 and #3) would be drilled on pre-existing disturbed areas within the footprint of abandoned drill holes. Well #2 would be drilled adjacent to a road on exposed rock. No vegetation clearing and/or leveling (i.e., bulldozing) of any pads would be required for drilling purposes.

Motorized equipment used in the construction and future maintenance would access the proposed wells using roads designated as available for public use in the Monticello TMP, which requires no new road construction. No road upgrading would be required or allowed, except to fix site-specific washouts within the roadway, which is not expected given the current condition of the roads. These existing roads would periodically be used by vehicles for future maintenance, approximately every 5-10 years, and yearly routine well operations and potential solar panel movements. This access would have no effect on vegetation as it occurs on existing roads, and vehicular trail on designated routes is not considered a surface disturbing activity (RMP, 2008).

Impacts to vegetation from the process of drilling three water wells are minimal and would not further accelerate the natural erosion process. It is anticipated that approximately 0.06 acres (50 feet by 50 feet) would have an immediate disturbance at each well, which would total 0.18 acres for all three wells. This is due to the drill rig being mounted on a large truck requiring no external rigging, and no clearing/leveling on the pads would be necessary. Wells #1 and #3 are located in previously disturbed sites on abandoned well pads in an Upland Shallow Loam (Pinyon-Juniper) ecological site. These areas have not been reclaimed and any drilling activities would be re-disturbance to opportunistic vegetation (e.g., sagebrush, rabbitbrush, pinyons, junipers, four-wing saltbush, etc.). Well #2 would be located adjacent to a road on a rock outcrop in a Semidesert Shallow Sandy Loam ecological site. This site is sparsely vegetated (e.g., blackbrush, junipers, Indian ricegrass, Mormon tea) since it is dominated by rock, thus negligible vegetation would be disturbed by the proposal.

Long-term impacts to vegetation around the proposed water improvements may occur once the drilling of the three water wells and installation of associated infrastructure is completed. This is because livestock would tend to trail and concentrate around the water sources and trample vegetation at the immediate site, as stock water is the center for grazing activity. Anticipated impacts to vegetation, estimated at 0.25 acres at each well site (estimated footprint after drilling and livestock concentration per site), totals 0.75 acres of disturbance. Shrubs, such as sagebrush, four-wing saltbush, could receive the greatest impact from this action through breakage, yet it is anticipated

they would recover after the construction in one to two years or be replaced by native herbaceous plants. Native grasses, such as galleta grass, sand dropseed, and Indian ricegrass, could be trampled by the livestock and may decrease in frequency and in ground cover rates by approximately 50% inside the total 0.75 acre of disturbance. This anticipated impact to vegetation is nominal in relation to the available ecological sites and other vegetation in the immediate area. The 0.75 acre of disturbance would be dispersed across three localities on the Flats, Pollys, and Slickhorn Pastures (112,025 total acres) in areas with vegetation that was previously disturbed (e.g., Wells #1 and 3) or on exposed rock (e.g., Well #2).

Beneficial impacts to vegetation and increased rangeland resilience from the additional three water wells would result from greater control and enhanced distribution of livestock. This would further disperse the existing grazing pressure and intensity on vegetation resources into areas previously underutilized by livestock due to a lack of sufficient waters in the Flats, Slickhorn, and Pollys Pastures (112,025 total acres). This provides a better opportunity for key plant species and preferred areas to maintain and gain vigor by allowing greater opportunities to facilitate plant reproduction, recovery, vigor, and maintenance of desired plants to the extent natural conditions allow. These benefits are anticipated to be spread across approximately 17,390 acres in these pastures when topography, fence lines, pasture arrangements, and proposed well locations are taken into consideration. These situations would further enable adaptive management of the predominant Upland Shallow Loam (Pinyon-Juniper) and Semidesert Shallow Sandy Loam (Juniper-Pinyon) ecological sites and may allow improvement in the current vegetative trend in the frequency of occurrences for key plant species to the degree natural environments dictate.

Additional upland water sources, such as proposed, enable greater options to adapt to climate variability, drought, and changing land uses by providing additional livestock management options for the BLM and the permittee. This adaptive management allows for greater consideration and options of livestock duration, timing, intensity, and rotation opportunities to manage for healthy vegetation and resilient rangelands. In these three Slickhorn Pastures, livestock forage primarily on sand dropseed, galleta, crested wheatgrass, and Indian ricegrass. The proposed projects would allow more uniform utilization levels at a moderate (50%) degree, or less, on these key plant species as recommended by the BENM MMP and MFO RMP through greater distribution of livestock and adaptive management options (MMP, 2020).

Future maintenance of the wells to keep them in a functional condition would be the responsibility of the permittee as outlined in a BLM Cooperative Range Improvement Agreement. Maintenance activities would take place within the same disturbance footprint as the constructed water wells. Furthermore, access needed for maintenance activities would be of the same type as the access needed for the initial construction on existing roads designated as available for motorized use in the TMP. Maintenance activities are expected to occur regularly but infrequently (approximately every five to ten years), therefore the impacts to vegetation are expected to be minimal.

At the 12-digit Hydrologic Unit (HUC 12) watershed scale (natural boundary that reflects landscape processes between vegetation, soils, and hydrologic functions), the current number of existing water developments is 24. The watersheds present in the project area encompasses 69,499 acres that include the Bullet Canyon-Grand Gulch HUC (29,461 acres, Well #1), Outlet Grand Gulch HUC (15,557 acres, Well #2), and Slickhorn Canyon HUC (24,481 acres, Well #3). Each existing water development is estimated to have a footprint of about 0.25 acres; therefore, the total

existing footprint is estimated to be 6.0 acres. The estimated impact from an additional four BLM water developments that are likely to be developed within the next ten years, would also overlap with the HUCs, and would add approximately 1.0 acre of disturbance. In addition, there are an estimated 4 water wells that are reasonably foreseeable on SITLA lands on the Slickhorn allotment and would add about 1.0 acre of disturbance. Therefore, impacts of the Proposed Action, existing water developments, and reasonably foreseeable water developments to vegetation would be additive, however, relatively small when compared to the total area of existing and potential disturbance (8.0 acres) as well as the total area of the three HUCs (69,499 acres).

As well, within the larger watershed areas that are within these three pasture units the existing 24 range improvements (e.g., reservoirs, springs, fences, corrals, etc.) and future development of water resources have or would have the same effect as the Proposed Action, in that it provides more uniform utilization of forage/vegetation within the HUCs, which leads to positive improvement of rangeland vegetative conditions. A fence located on one of the tributaries of Slickhorn canyon and a fence to prevent livestock grazing in Kane Gulch, as well as four additional water wells on BLM and 4 potential water wells on SITLA, are reasonably foreseeable actions within the Slickhorn allotment. These future range improvements are expected to further improve livestock distribution or in the case of the fences, eliminate livestock use in the canyon areas below the fence lines, and therefore be beneficial to the soils, riparian, and vegetation of the allotment.

If monitoring post construction shows inadequate natural plant recovery and response at the proposed well sites, the permittee would complete reclamation/seeding within three years. This would provide a seed base for the establishment and growth of seeded plants to provide ground cover and competition against undesired plant species in the areas of disturbance (0.75 acres).

Overall, the proposal would increase available water, increase livestock distribution and management flexibility, allow more even utilization patterns on vegetation, while disturbing minimal plant communities. Biotic integrity would continue and be maintained at levels appropriate for the site and species involved. Multiple use of the rangelands would continue under the proposal and allow for the sustained yield of the vegetation and provide for the protection of BENM's objects.

3.4 Issue 3: Would the drilling and production of the water wells reduce spring flows and ground water levels in the project area?

3.4.1 Affected Environment (Water)

There are limited surface water resources within and surrounding the Slickhorn Allotment. Stock ponds capture stormwater runoff from infrequent precipitation events and are undependable water sources. The larger stream channels are also a source of low-quality surface water during and shortly after a rainfall event with high levels of sediment and debris.

Much of the surface water in this area originates directly from ground water resources. Sections of the larger streams are spring-fed and usually flow in cooler seasons (winter/ early spring), with flow quantity and flow duration dependent on recent climate conditions. Most springs in this area are sourced in the Cedar Mesa Sandstone of the Cutler Group.

Small seeps and springs are scattered throughout the area, with variable flows depending on the seasonal, annual, and long-term climate conditions. Although there are no perennial stream seg-

ments in the area, there are short stream segments that flow intermittently (more than 3 consecutive months) in the cooler seasons, fed by spring flows.

A Public Water Reserve (PWR) is a federal reserve water right for use by the public, established prior to Utah State Water Law. There are no Public Water Reserves (PWRs) in the Slickhorn Allotment and two PWRs related to Collings Spring in the adjacent Lake Canyon Allotment. The proposed Slickhorn Pasture Well is 3.8 miles away from these PWRs, the proposed Polly Mesa well is 9.2 miles away and the proposed Brushy Flat well is over 13 miles away.

There are two regional aquifers in this area: the older, deeper Redwall aquifer and the younger, shallower P aquifer. These aquifers are not laterally or vertically homogenous therefore the location of water can be unpredictable (Gloyn, 1995). Most recharge occurs from infiltration of precipitation and stream flows at elevations greater than 8,000' where most precipitation falls. Other important regional aquifers (C aquifer, N aquifer, M aquifer and D aquifer) are not present in this portion of San Juan County. There are multiple water wells in the area, most are deep (over 500') and have low flows (5 gpm or less) and are sourced in the Cedar Mesa Sandstone of the Cutler Group.

To better understand the regional hydrology all known water features within 5 miles of each proposed well were inventoried and available information was compiled. This area includes the larger and more prominent water features in the region such as Tuwa Canyon Spring, Junction Spring, Natural Bridges National Monument Drinking Water Wells, and the BLM water well at the Kane Gulch Ranger Station which provides drinking water to the public. Table 1 below shows the number of existing springs and wells that are within 5 miles of each of the proposed wells. More detailed information is found in the staff report for hydrological resources (BLM 2021).

Table 1: Water Features within 5 miles of proposed wells

Proposed Well	**#springs within 5 miles**	**# wells within 5 miles**	**closest water feature**
Brushy Flat Well	5	0	1.2 miles
Polly Mesa Well	6	1	2.6 miles (spring)
Slickhorn Pasture Well	6	1*	1.2 (spring)

*As well a proposed well, the Old Timer Well, on the Lake Canyon allotment is about 3.4 miles away.

Six wells are being proposed on the adjacent Red House pastures of the Lake Canyon allotment one of which is within 5 miles of a proposed well within the Slickhorn allotment. As well, reasonably foreseeable BLM actions for this allotment include the fences at Slickhorn and Kane Gulch canyons and three more upland water sources in the northern pastures of the allotment. In addition, reasonably foreseeable SITLA actions on the Slickhorn allotment include 4 water wells. The closest any of these proposed and reasonably foreseeable water wells would be is 1.9 miles apart. These distances eliminate any potential for impacts to groundwater elevations from compounded drawdown effects between allotments and wells.

3.4.2 Environmental Impacts – No Action (Water)

The No Action Alternative is the continuation of the current situation; therefore, the proposed three water wells would not be drilled. The 112,025 total acres that are within the three pastures of the Slickhorn allotment, where wells were proposed, would not be further served by water in areas currently lacking reliable water sources. Livestock would continue their reliance on existing water sources which could have a continued impact on existing springs sources as these few water sources would draw the use of livestock and wildlife in the absence of other reliable water sources in each pasture.

Surface water resources in this area are also vulnerable to and may be impacted by changing climate conditions. Predicted conditions for this area include reduced annual precipitation levels, reduced monsoon moisture, warmer temperatures, reduced snowpack, and a shorter winter season of cooler temperatures (Halofsky 2018a and 2018b). The severe to extreme droughts that this area of Utah has been experiencing since 2018 is likely to have an impact on ground water levels and spring flow over the coming years, particularly if such drought conditions continue (USGS, 2007).

Changing climate conditions may impact water resources in this area by reducing aquifer recharge in the higher elevations, reducing spring flows, reducing storm runoff which can be stored in stock ponds and increasing evaporation rates which reduce the length of time water is stored in stock ponds.

3.4.3 Environmental Impacts– Proposed Action (Water)

Due to the locations and the project design features described in the proposed action, the potential for adverse impacts to spring-fed streams, springs and seeps from this proposal is low. Additional water sources, which are reliable, should have a beneficial impact to springs and overall watershed conditions because development of additional water sources would ultimately help increase animal distribution and grazing more evenly across the landscape resulting in a decrease in animal densities found near existing water sources (Ganskopp 2001; Bailey 2004)

Short-term impacts to ground water levels in the area from the drilling and operation of these proposed wells may occur but are not expected to be substantial. Pumping groundwater at these proposed sites may lower groundwater elevations adjacent to the wells during and shortly after each season of pumping. The closer the proposed well is to a water feature the higher the potential for impacts to that water feature.

As water is pumped from any water well there is a drawdown effect surrounding that well described as the cone of depression. How far the cone of depression extends, both horizontally and vertically, is dependent on site-specific aquifer characteristics and the pumping regime. As the pumping rate increases, the drawdown levels increase, and the cone of depression expands in size.

The proposal is to pump each well at low rates over short periods (4 gpm, 5.5 hours/day) for 2 months. This pumping regime would allow aquifer levels to recover around each water well before the next pumping season. Detailed information from pump tests would help determine the best pumping rates to avoid damaging the aquifer or increasing depths to groundwater.

Pump tests were conducted after drilling several water wells in the Natural Bridges National Monument in the 1970s. Water was pumped from the Cedar Mesa Sandstone at similar depths and similar pumping rates as expected for the proposed wells for up to 24 hours. Drops in water elevation ranged from 55' to 90' which generally recovered within 24 hours. Similar drawdowns and recoveries are expected from pumping the proposed wells.

All proposed wells are located over 1 mile from any documented springs or seeps which reduces or eliminates the potential for impacts. As described in more detail in the staff report for water resources (BLM 2021) and based on the pump test data for wells in Natural Bridges National Monument, the proposed wells should not reduce or impact flows at nearby springs. Likewise, there are no impacts to any PWRs associated with springs expected from this proposal.

None of the proposed wells are proximate enough to existing or other proposed wells to cause compounded drawdown effects. The shortest distance is between the proposed Polly's Mesa Well and an existing well at 2.8 miles apart. The distance between the proposed wells in the Slickhorn Allotment and the proposed wells in the Lake Canyon Allotment ranges from 3.6 miles to 23.7 miles. These distances eliminate any potential for impacts to groundwater elevations from compounded drawdown effects between allotments.

Project design features were developed to minimize the potential for impacts from the drilling and operations of these proposed water wells. Project design features include:

- Drilling the proposed water wells to 400-800' and pumping from these depths would increase the distance and travel time from the well pump to a spring at the surface. This would increase the distance from the cone of depression surrounding the well to a spring at the surface. The cone of depression is created when a water well is pumped and can lower the elevation of the aquifer temporarily or permanently. By targeting a deep zone in the aquifer away from any connection with the surface, the potential impacts to a nearby spring from drawdown effects are reduced.

- Casing the entire drill hole would help to isolate the effects of pumping the proposed wells from any nearby springs. Casing prevents water being pumped from any zone except the completed zone at depth, therefore minimizing impacts to springs that are sourced in shallower zones.

- Drilling at least 100 meters away from a spring or seep is a standard buffer used by BLM in planning documents (BLM 2008) to reduce impacts to surface water resources. This minimizes impacts to springs from both drilling and production of water wells.

- Pump tests are required to be conducted at each well after drilling and would provide detailed flow rates and pressures before final production plans are developed. This information would be used to guide appropriate pump rates to reduce impacts to nearby springs and groundwater levels. BLM may require the permittee to reduce pumping rates based on pump tests at each well.

3.5 Would the Developing of the Range Improvements Protect the Objects of Bears Ears National Monument?

3.5.1 Affected Environment (BENM)

On October 8, 2021, President Biden signed Presidential Proclamation 10285 ("the Proclamation") restoring the boundaries of Bears Ears National Monument (BENM) and protecting the objects of historic and scientific significance identified in Proclamation 9558 and Proclamation 10285. In addition to the overall Cedar Mesa area, which is identified as an object in Proclamation 10285, objects identified within the Cedar Mesa area include: (1) cultural resources, (2) Moon House, (3) Chacoan roads, (4) Ancestral Pueblo great houses, (5) Ceramics, (6) bighorn sheep, (7) fossils, (8) Salvation Knoll, (9) petroglyphs ad pictographs, (10) Citadel, (11) Road Canyon with painted handprints, (12) Mexican Spotted Owl (MSO) habitat, perennial water, and pueblo structures in Fish Canyon, and (13) Nevills Arch in Own Canyon. The Proclamation also provides specific management direction for livestock grazing as follows:

- "The Secretaries shall manage livestock grazing as authorized under existing permits or leases, and subject to appropriate terms and conditions in accordance with existing laws and regulations, consistent with the care and management of the objects identified above and in Proclamation 9558".

3.5.2 Environmental Impacts – No Action Alternative (BENM)

The No Action Alternative is the continuation of the current situation; therefore, the proposed range improvement water wells would not be constructed. BENM objects, including the entirety of Cedar Mesa, would continue to be protected under existing conditions and current management in consideration of the 2020 BENM MMP and 2008 MFO RMP. Cultural resources, including Chacoan roads, great houses, ceramics, petroglyphs, pictographs, and pueblo structures, would continue in their current condition under existing land uses. Moon House, through a limited permit system, and the Citadel, would continue to provide outstanding opportunities for the public to responsibly visit a cultural site under all alternatives. Road Canyon, Fish Canyon, Owl Canyon, and Salvation Knoll and their resources are outside the area of potential impact associated with the proposal. Fossils resources would continue to be managed under the 2008 RMP and 2020 MMP for the protection of the BENM objects identified on Cedar Mesa. Bighorn sheep habitat would continue to provide sufficient resources for the animals yet forgo opportunities for additional water supplies under the proposed action.

3.5.3 Environmental Impacts – Proposed Action (BENM)

The proposed range improvement projects on the Slickhorn Allotment are not only intended to improve livestock grazing practices but are designed to ensure protection of the BENM's objects. Potential impacts to monument objects were considered by the BLM interdisciplinary team (IDT) during development of this EA. Based upon this process, modifications were made to the original proposed action to avoid potentially impacting objects, such as cultural resources (see Section 2.3.1).

As discussed in more detail in Sections 3.2.3 and 3.3.3, the proposed range improvements would provide more upland water sources throughout the Allotment that allow for greater control and

distribution of cattle. That, in turn, would allow livestock to graze more evenly across the Allotment on Cedar Mesa, thereby reducing the potential for impacts to the monument's objects that could result from more concentrated use in certain areas.

Cultural resources, including Chacoan roads, great houses, ceramics, petroglyphs, pictographs, and pueblo structures, would not be impacted by the proposed water wells because a class III cultural resource inventory of the proposal was completed as part of this clearance. Two cultural resources were located within the Area of Potential Effect and determined not eligible for the NRHP resulting in a finding of No Historic Properties Affected. Neither site would be impacted by the project. No historic properties would be impacted as per the NHPA 54 U.S.C. 3016108 (Section 106) and Executive Order 13007. Consultation with the SHPO was completed and SHPO concurrence on the determination of No Historic Properties Affected was received on 12/08/2020. Consultation Letters were sent out to 32 Nations on September 8, 2021. The BLM has received four responses: Hopi, Navajo Nation, Pueblo de San Ildefonso, who all concurred with our findings of "No Historic Properties Affected" and Pueblo of Laguna who requested a copy of the cultural survey. The proposed action would provide additional protection to cultural resources from grazing impacts through benefits of increased livestock distribution resulting from the additional upland water sources. This would reduce potential for trampling of cultural sites by spreading the same authorized number of cattle over a greater area, thereby reducing livestock congregation.

Moon House, Salvation Knoll, Citadel, Road Canyon, Fish Canyon, and Owl Canyon would not be impacted by the proposal because they are not present in the area of potential disturbance and are geographically isolated from the proposal.

Bighorn sheep habitat would benefit with additional water sources from the proposal yet may be temporary displaced for a short duration during construction. The minimal surface disturbance and short duration of drilling the wells is not anticipated to permanently disturb wildlife species or to remove critical habitat.

The proposed action occurs in Potential Fossil Yield Classification (PFYC) units #3, which has moderate or infrequent occurrence potential of paleontological resources. Vertebrate fossils and traces should not be impacted during the proposed action. Yet, if fossils are encountered during the implementation of the proposed action, work would stop, MFO would be contacted within two working days, and the BLM would provide guidance on how to proceed. This requirement is included in the proposed action. Greater distribution of cattle provided by the proposed action's water sources would reduce livestock concentration in units #2-5, which in turn reduce potential impacts by cattle to fossils in these areas.

Livestock grazing would continue to be managed as authorized under the existing grazing permit on the Slickhorn Allotment held by Kenneth Black. Authorization of cattle grazing would be consistent with the care and management of the BENM objects identified on Cedar Mesa.

As a result of the analysis in this EA and as shown above, the BLM has concluded that the proposed action is in conformance with Presidential Proclamation 10285 and provides for the protection of the BENM's objects of scientific and historic interest.

3.6 Monitoring and/or Compliance

The BLM has existing long-term vegetation monitoring studies (e.g., nested frequency) established in Key Areas in the vicinity of the Proposed Action. These studies would continue to be maintained and read by the BLM periodically to show long-term vegetation trends. Other BLM rangeland monitoring would include periodic range utilization (Key Species Method) of forage to assess use levels (BLM, 1999), Actual Use Reports of Livestock Grazing, and precipitation measurements. This monitoring data would be compiled and evaluated by the BLM to help determine if the proposed range improvements and overall grazing management are having desired influences on utilization rates of forage, livestock distribution patterns, and vegetative response. These monitoring methods and data would help facilitate an understanding of rangeland conditions and management objectives for making decisions on the Allotment.

BLM staff would conduct bi-annual monitoring of select springs for the first 5 years after the wells are constructed as time and funding allows to help determine if pumping the proposed wells is impacting nearby spring flows. Between 6-9 springs would be monitored based on any or all of the following criteria: 1) their proximity to proposed wells, 2) access, 3) public interest including recreation use, 4) higher chance of measurable flows and/ or 5) within a Public Water Reserve (PWR). Monitoring would be conducted in October, prior to the grazing season, and again in April, after the grazing season. Measurements of flows and/ or pool size would be collected along with photos to document site conditions, with data collection initiated prior to drilling. These springs are intended to be monitored for potential impacts of the three proposed wells on the Slickhorn Allotment as well as the six proposed wells on the Red House Pastures of the Lake Canyon Allotment. Monitoring may continue beyond 5 years if it is determined feasible and necessary to continue.

The permittee will provide the results of the pump test completed after drilling the well and also any additional pump test that are conducted as needed.

4.0 CONSULTATION AND PUBLIC SCOPING

Great Old Broads for Wilderness: no comments received.
Western Watershed Project: comment letter received dated 01/07/22.
San Juan County: no comments received.
SE Utah Grazing Improvement Program: no comments received.
Kenneth Black: supports proposal.

5.0 REFERENCES CITED

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APPENDIX A: INTERDISCIPLINARY TEAM CHECKLIST

DETERMINATION OF STAFF: ***(Choose one of the following abbreviated options for the left column)***

NP = not present in the area impacted by the proposed or alternative actions
NI = present, but not affected to a degree that detailed analysis is required
PI = present with potential for relevant impact that need to be analyzed in detail in the EA

The following are either not present, not applicable, or not measurable issues in the Monticello Field Office and have been removed from the checklist: Farmlands (Prime or Unique), Wild Horses and Burros, Greenhouse Gas and Geology. The word "Religious" was removed from the Native American Concerns heading.

Determination	Resource	Rationale for Determination*	Signature	Date
NI	Air Quality	The proposed project is in conformance with the Monticello RMP, 2008 (RMP Decisions GRA-1 and 7). The impacts to air quality were adequately analyzed in the RMP. As stated in the analysis (PRMP/FEIS 4.3.1.3 (pg. 4-10 and 11) "…managing livestock grazing allotments to ensure proper functioning conditions and forage utilization levels…would not likely affect air quality." The project would result in emissions from the operation of internal combustion engines and emissions of particulates from drilling, and operation of vehicles and equipment on unpaved road surfaces. These emissions would be temporary, would rapidly disperse and are unlikely to cause or contribute to a violation of air quality rules. The project is not subject to Utah Division of Air Quality permitting. The impact to air quality from the proposed action does not require detailed analysis in the EA.	J. Carling	05/14/20
NP	Areas of Critical Environmental Concern	There are no designated Areas of Critical Environmental Concern or other ecologically significant areas identified in the 2008 Monticello RMP present in the project area.	J. Byrd	06/16/20
NI	BLM Natural Areas	There are no BLM Natural Areas within the project area.	M. Haines	08/12/20
NI	Cultural Resources	A class III cultural resource inventory was completed as part of this clearance. Two cultural resources are located within the Area of Potential Effect and determined not eligible for the NRHP resulting in a finding of No Historic Properties Affected. Neither site would be impacted by the project. No historic properties would be impacted as per the NHPA 54 U.S.C. 3016108 (Section 106) and Executive Order 13007. Consultation with the SHPO was completed and SHPO concurrence on the determination of No Historic Properties Affected was received on 12/08/2020.	L. DeHaven	12/08/20
NI	Environmental Justice	The project is in a remote area of San Juan County where no population exists, including minority or low-income populations. The ethnic composition and economic situation of residents in San Juan County indicates that minority or low-income populations are not experiencing disproportionately high or adverse effects from current management actions (MFO FRMP/FEIS, pg 4-421). There would be no impact to Environmental Justice with the approval of the proposed action.	J. Carling	04/15/20
NI	Fish and Wildlife Excluding USFW Designated Species	Brushy flat site is within Crucial Deer Winter Range. To prevent undue stress to wintering deer there would be no surface disturbing actions from November 15 to April 15 for the construction of this well without BLM biologist approval. While cattle are likely to congregate at this point an additional water source with further spread-out cattle between that various water sources and provide an additional water source for mule deer.	M. Wardle	05/14/20

Determination	Resource	Rationale for Determination*	Signature	Date
		The minimal surface disturbance and short duration of drilling the wells is not anticipated to permanently disturb the deer, and other wildlife species or to remove critical habitat. The additional water sources may be beneficial by providing more available water. Escape ramps would be placed in all troughs to prevent mortality to small animal species. There would also be no increase in grazing AUMs for this action so there would be no conflict in forage availability.		
NP	Floodplains	The proposal is located in the uplands and are not situated in any immediate active floodplains. The proposed action does not result in any permanent fills or diversions, or placement of permanent facilities in floodplains or special flood hazard areas. Floodplains are not present in the immediate vicinity of the action and there are no larger scale affects to a degree that detailed analysis is required.	J. Carling	04/15/20
NI	Fuels/Fire Management	The activity of drilling water wells is no more hazardous to fire cause than any other motorized activities already taking place on the public lands. The result of three additional water troughs and better dispersed grazing activities would not increase fire potential but rather may aid in reduced fuel loads, less chance of fuel type conversion, and provide for water source access during suppression activities. Fire and Fuels need not be analyzed further in this EA.	P. Plemons	05/07/20
NI	Invasive Species/ Noxious Weeds	There are no known infestations of State of Utah listed noxious weeds in the immediate vicinity of the proposed action. The MFO does not anticipate any changes in the proportion of controllable spreading agents to contribute to the establishment and spread of invasive plants or noxious weeds as a result of the proposed action. This is because of the limited scope of actual surface disturbance, natural site limitations, and proactive measures taken to help control the potential for invasive and noxious plants (e.g., power washing of equipment before work). In the unlikely event that noxious weeds establish as a result of activities connected to the proposed action, the BLM would control these weeds utilizing BLM's integrated weed management strategies. Thereby, for reasons listed above, invasive species and noxious weeds are not impacted to a degree that detailed analysis is required.	N. Noyes	04/20/20
NI	Lands/Access	The project would not impact prior rights or land use authorizations in the area. All travel would be on routes designated as open in the RMP and the project would not impede public access.	N. Norton	10/21/20
NI	Lands with Wilderness Characteristics	Wells #1 and #3 are located outside of areas identified as having Wilderness Characteristics in the 2008 Monticello RMP or subsequent analysis. Well #2 is located within lands determined to have wilderness characteristics, but these lands are not managed for those characteristics in the 2008 Monticello RMP. The addition of the well pad, solar panels, pump jack, and water troughs with wildlife escape ramps, and a small earthen reservoir or pipeline adjacent to the existing road on exposed slickrock would impact naturalness on the .75 acres of disturbance associated with the proposal and would potentially impact naturalness to additional areas visible from the well location. This area is not managed to protect wilderness characteristics as per the 2008 Monticello RMP. Further analysis is therefore not required.	M. Haines	08/12/20
PI	Livestock Grazing	The proposed action occurs on the Slickhorn Allotment, which encompasses 128,625 BLM acres, or 146,131 total acres. The grazing permittee (Kenneth Black) is the applicant for the proposed three water wells. It is reasonably foreseeable that the proposed action would not increase AUMs and/or livestock numbers because of current limits in forage	J. Carling	04/15/20

Determination	Resource	Rationale for Determination*	Signature	Date
		availability and rangeland carrying capacities. The proposed water wells would supplement existing water sources for currently permitted AUMs and livestock on the allotment. The action may potentially impact livestock grazing as it would require action by the permittee and modify livestock distribution across this vast allotment by providing more water sources, which would further augment current water supplies (e.g., wells, reservoirs, springs, etc.).		
NI	Migratory Birds	Migratory Birds and Raptors may be temporally displaced by well construction actives. The minimal disturbance and short duration of drilling the wells is not anticipated to permanently disturb migratory birds or remove a significant amount of habitat. To further eliminate conflicts a no timing stipulation of no construction activities between May 1st- July 30th will be in place unless waived by the BLM biologist at the time of construction. The additional water sources may be beneficial by providing more available water. Escape ramps would be placed in all troughs to prevent mortality to bird species.	M. Wardle	05/14/20
NI	Mineral Resources/ Energy Production	The proposed action is located within the BENM. Pursuant to the Presidential Proclamation 10285, BENM is withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws. This precludes any future exploration and development of mineral resources in the monument, with exception of valid existing rights, which are not known to occur in proximity of the proposed action. Therefore, the proposed action would not interfere with mineral development. An LR2000 report was completed on October 22, 2020, and there were no active or pending mining claims in the proposed project areas.	R. James	05/23/22
NI	Native American Concerns	Consultation Letters were sent out to 32 Nations on September 8, 2021. The BLM has received four responses: Hopi, Navajo Nation, Pueblo de San Ildefonso, who all concurred with our findings of "No Historic Properties Affected" and Pueblo of Laguna who requested a copy of the cultural survey.	S. Lane	12/03/21
NI	Paleontology	The proposed action occurs in Potential Fossil Yield Classification (PFYC) units #3, which has moderate or infrequent occurrence potential of paleontological resources. Surveys are not required for PFYC 3 formations. Vertebrate fossils and traces should not be impacted during the proposed action. Yet, if fossils are encountered during the implementation of the proposed action, work would stop, MFO would be contacted within two working days, and the BLM would provide guidance on how to proceed. This requirement is included in the proposed action. There are no anticipated impacts to a degree requiring detailed analysis for reasons listed above.	R. James	04/28/22
NI	Rangeland Health Standards	Utah Standards for Rangeland Health are individually addressed as separate resources for determination of impacts in this checklist (Standard #1-Soils, #2-Riparian, #3-Biotic (vegetation/wildlife), and #4-Water Quality). Thereby, there are no impacts that require detailed analysis to Rangeland Health Standards and Guidelines that are not already being considered by the individual resource.	J. Carling	04/15/20
NI	Recreation	The three well locations are located within the Cedar Mesa Special Recreation Management Area, which the 2008 Monticello RMP states is to be managed to provide outstanding recreational opportunities while protecting natural and cultural resources. The well locations have been positioned in locations which receive low recreational use, despite being in fairly close proximity to recreational facilities.	M. Haines	08/12/20

Determi-nation	Resource	Rationale for Determination*	Signature	Date
		Location #1 is approximately.25 miles from the Snow Flat register box, which also serves Moon House. Heavy vegetative and topographic screening separates the well location from the register. Both the installation of the well and the subsequent attraction of some number of additional cattle to the area would be removed in distance from the register area to a degree that would result in no negative impact to recreational users. Location #2 would not be visible from any established BLM trailheads or designated trails and is in a location that isn't generally used for dispersed camping. Location #3 is approximately 1 mile from the Slickhorn developed trailhead at the end of a road and drill pad which was cherry stemmed out of Grand Gulch ISA, as described in the 1991 Utah Wilderness EIS and intensive inventory files from 1983. A field visit indicated little to no recreational use of the immediate area of the proposed action, including dispersed camping or parking for hiking. To protect the Wilderness Study Area outside of the cherry stemmed area, design features include signing this area for no camping. This would constitute removal of one potential designated campsite on the Mesa Top. Sampling of dispersed campsites within the Cedar Mesa area suggests a high number of dispersed campsites in the area, meaning that the removal of one potential, though unused, site would not constitute a substantial impact to recreational users within the SRMA.		
NI	Socio-Economics	No measurable socio-economic impacts, positive or negative, are likely to occur for this project because of its small scale. Some minor positive impacts to the local economy may result as material is purchased and individuals are hired to operate the drill rig.	J. Carling	04/15/20
NI	Soils	Soils in the area of interest (11,478 acres) from the Custom Soil Resource Report for the Slickhorn Allotment Water Wells are primarily composed of Rizno-Barx-Yarts Complex (8,077 acres) and Barx Very Fine Sandy Loam, 1 to 4 Percent Slopes (1,586 acres), which account for 84% of these soils. These soils are generally a fine sandy loam, well drained, located on structural benches, and are alluvium derived from sandstone and/or eolian deposits derived from sandstone (NRCS, 2020a). The proposed action is drilling three water wells. The wells would be accessed from roads designated in the MFO TMP as available for motorized use. As defined in Appendix B of the 2008 MFO RMP, vehicular travel on designated routes is not considered a surface disturbing activity. No road construction nor blading would be necessary, except to fix any site-specific washouts within the road's footprint. Therefore, access to the proposed wells would have negligible impacts to soils. Overall, impacts to soils are nominal due to the scale of new soil disturbance (~0.75 acres) from drilling operations and livestock concentration in relation to the area of interest (11,478 acres), or 0.006% of area with disturbance. In addition, potential impacts to soils would be mitigated because the action does not include pad construction / soil blading, wells are distributed across the rangelands at 3 locations, future access for maintenance would be infrequent (~5-10 years), reclamation would occur if necessary, wells would be drilled on pre-existing disturbed soils on abandoned well pads, action would not accelerate soil erosion as no well pad construction would occur, and the proposal would have no long-term negative influence on the landscape's ability to achieve Standard #1 (Soils) for Rangeland Health because upland soils will continue to ex-	T. Marian	08/06/21

Determination	Resource	Rationale for Determination*	Signature	Date
		hibit permeability and infiltration rates that sustain site productivity. For reasons listed above, soils are not impacted to a degree that detailed analysis is necessary.		
NI	Threatened, Endangered or Candidate Animal Species	All wells fall into projected Mexican Spotted Owl (MSO) foraging habitat, but none are within suitable nesting habitat or designated Critical habitat. Timing stipulations of no surface disturbance for construction of the wells for Migratory birds and nesting raptor species would eliminate chances of disturbing potential MSO and other raptor species in the area. March 1-August 31 unless an additional clearance is conducted and approved by the BLM biologist. Not being in nesting habitat and having drilling activities occur outside of the breeding season remove any need to consult with USFWS on these species. The minimal disturbance and short duration of drilling the wells is not anticipated to permanently disturb or remove habitat. The additional water sources may be beneficial by providing more available water. Escape ramps would be placed in all troughs to prevent mortality to bird species. There are no other known threatened, endangered or candidate wildlife species within the proposed project area.	M. Wardle	05/13/20
NP	Threatened, Endangered or Candidate Plant Species	The wells do fall into the potential area of Navajo Sedge occurrence, site visits to the locations show that the sandstone rock formation and seeps type habitat associated with Navajo Sedge is not present at any of the well sites. There are no other known threatened, endangered or candidate plant species within the proposed project area.	M. Wardle	05/14/20
PI	Vegetation Excluding USFW Designated Species	The construction and maintenance of the proposed three wells could have immediate impacts to vegetation through construction activities that may disturb plants. Then livestock would concentrate at the wells when watering and disturb vegetation. Also, positive impacts to vegetation could occur through increased adaptive management that improves control of livestock grazing patterns, livestock distribution, and vegetation utilization levels.	J. Carling	04/15/20
NI	Visual Resources	Each of the proposed well locations are in areas designated as VRM Class III in the 2008 MFO Resource Management Plan. The objective of Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Activities may attract the attention of a casual observer but should not dominate the view. The following project design features would mitigate visual contrast from the proposed wells: no vegetation clearing and/or leveling (i.e., no bulldozing) of the pads; reclamation/reseeding using a native seed mix may be implemented by the applicant depending on the extent of impacts after construction as determined by the BLM; proposed infrastructure would be painted in neutral colors to reduce visual contrast with the natural topography and landscape, as determined by the BLM in coordination with the applicant; and if solar panels are mobile, they would be mounted on a purpose-built trailer (e.g., ATV style) that is low profile and not brightly colored. The Brushy Flat Well (#1) would be well-screened by vegetation and GIS viewshed analysis shows that it would not be visible from the Key Observation Point (KOP) of the Snow Flat Road and Moon House register kiosk, which is approximately 0.25 miles away. Therefore, it would not be noticeable by the casual observer and would meet VRM III objectives.	S. Sparks	08/21/20

Determi-nation	Resource	Rationale for Determination*	Signature	Date
		The Slickhorn Pasture Well (#2) would be located in a remote location at the end of County Road D0045 and GIS viewshed analysis shows that it would not be visible from the nearest KOPs of the Slickhorn trailhead (1.3 miles away), hiking route, or County Road 203 which accesses the Slickhorn trailheads. Therefore, it would not be noticeable by the casual observer and would meet VRM III objectives. The Polly Mesa Well (#3) would be located in a remote location seldom visited by most Cedar Mesa and Grand Gulch recreation users. GIS viewshed analysis shows that the well would be visible at a distance of 0.8 miles from County Road 245, the KOP for this location. There is a dispersed campsite at the end of this road at the same approximate distance from the well. However, with the project design features noted above to reduce and mitigate visual contrast, the well may be noticeable by the casual observer but would not dominate the view. Therefore, it would meet VRM Class III management objectives.		
NI	Wastes (hazardous or solid)	The Monticello 2008 RMP, Appendix G contains Standard Operating Procedures (SOPs) for public land use authorizations. The SOPs provide adequate mitigation for handling solid wastes generated at construction sites. No hazardous wastes would be generated, stored, treated, or transported as a result of the proposed action.	N. Noyes	04/20/20
PI	Water Resources/ Quality (drinking/surface/ ground)	There is little potential for impacts to water resources from drilling and producing these water wells. Potential impacts to water resources including reduced spring flows and reduced groundwater elevations are minimized by project design features. A staff report that is included in the project files for the EA contains more detailed information for both ground water and surface resources (BLM 2021). A summary of this information found in the report and the potential impacts to water resources will be analyzed in detail in the EA.	A.M. Aubry	08/04/21
NP	Wetlands/Riparian Zones	The area of the proposal is located in the uplands and does not include any delineated wetlands and/or riparian zones.	J. Carling	04/15/20
NP	Wild and Scenic Rivers	There are no designated National Wild and Scenic Rivers System (NWSRS) segments, or segments identified in the Monticello RMP as "suitable for designation" into the NWSRS system, present in the project area.	S. Sparks	06/29/20

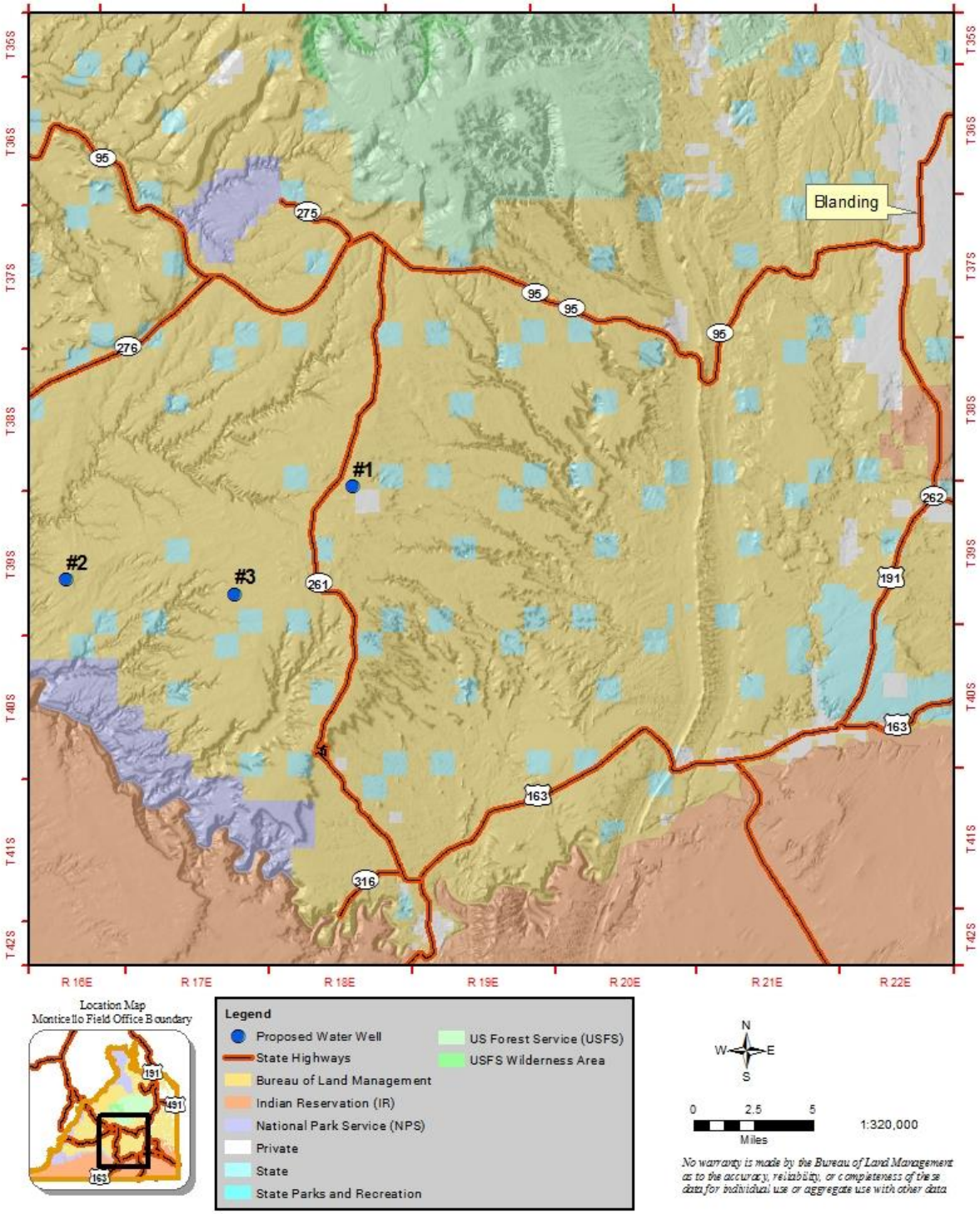
Determination	Resource	Rationale for Determination*	Signature	Date
NP	Wilderness/WSA	Although none of the well locations or access routes are within Wilderness Study Areas as designated by the 2008 Monticello RMP, BLM Manual 6330 instructs BLM to consider impacts to WSAs for actions proposed on adjacent public lands. Well #1 would be completely visually screened from adjacent WSAs. Well #2, on Pollys Mesa, is separated from the Grand Gulch ISA Complex by boundary Road D0045. A GIS viewshed indicates this location may be visible from several locations on the western edge of Grand Gulch. Potential impacts to naturalness within the WSA have been mitigated though design features requiring that the new development be low profile and painted in BLM-approved colors. See Visual Resource section of checklist for details. Well #3, near the Slickhorn trailhead, is accessed and located within an area which was cherry-stemmed out of the Grand Gulch ISA Complex as an existing disturbance at the signing of FLPMA. The location was field checked to determine that co-located activities, such as dispersed camping or parking, would not be displaced by this activity in a way that could indirectly impact the WSA. Despite the location's proximity to the Slickhorn trailhead, there is no apparent evidence of dispersed camping or other recreational use in the area. Potential impacts to the WSA have been mitigated through design features requiring the proponent to drive and turn vehicles only on designated routes within the existing disturbance. In addition, the location would be signed as no camping to reduce potential impacts.	M. Haines	08/12/20
NI	Woodland/Forestry	The proposed project sites are not removing woodland resources.	M. Wardle	05/13/20

FINAL REVIEW:

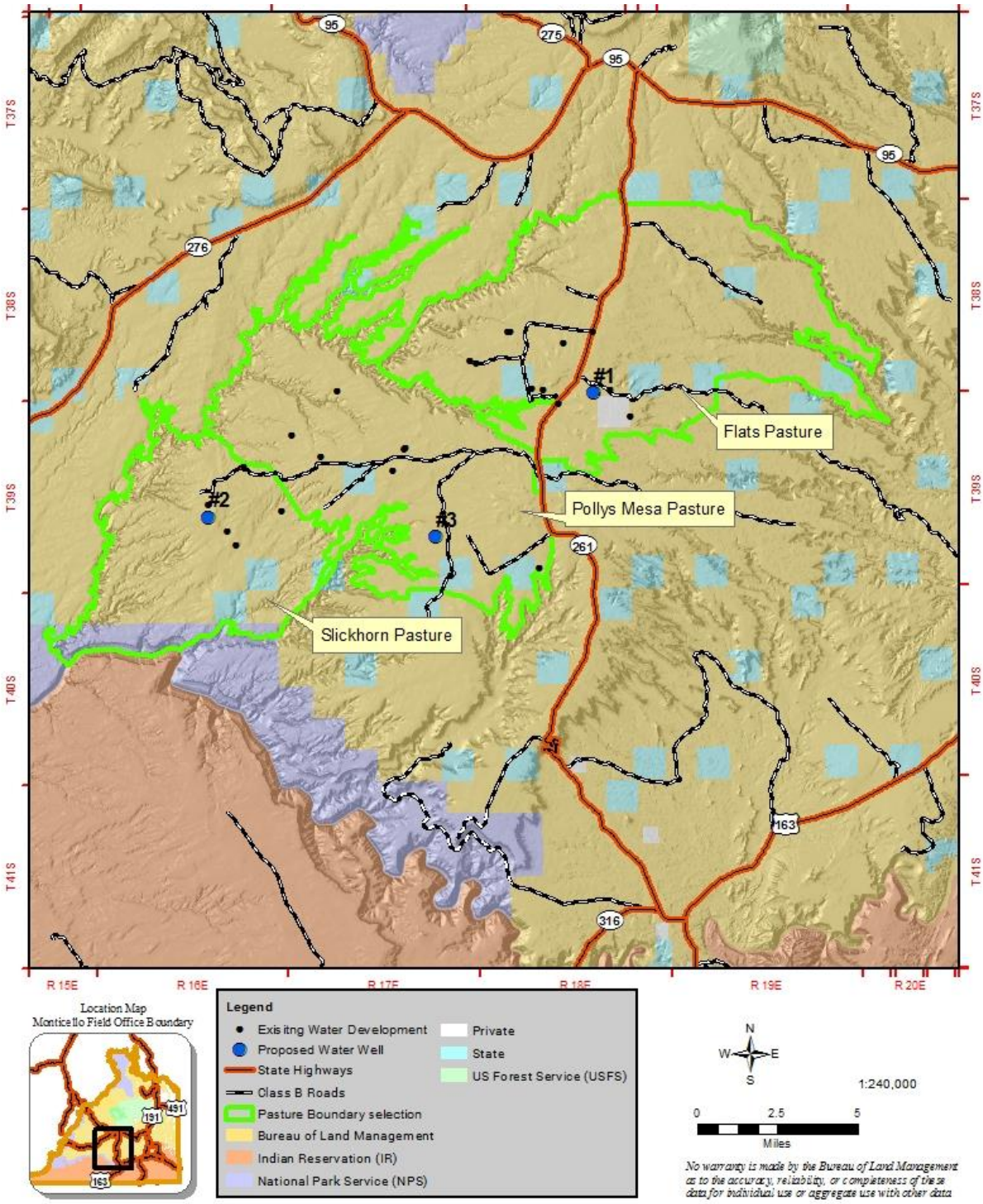
Reviewer Title	Signature	Date
Environmental Coordinator	/s/ Emilee Helton	05/19/2022
Authorized Officer		

APPENDIX B: MAPS

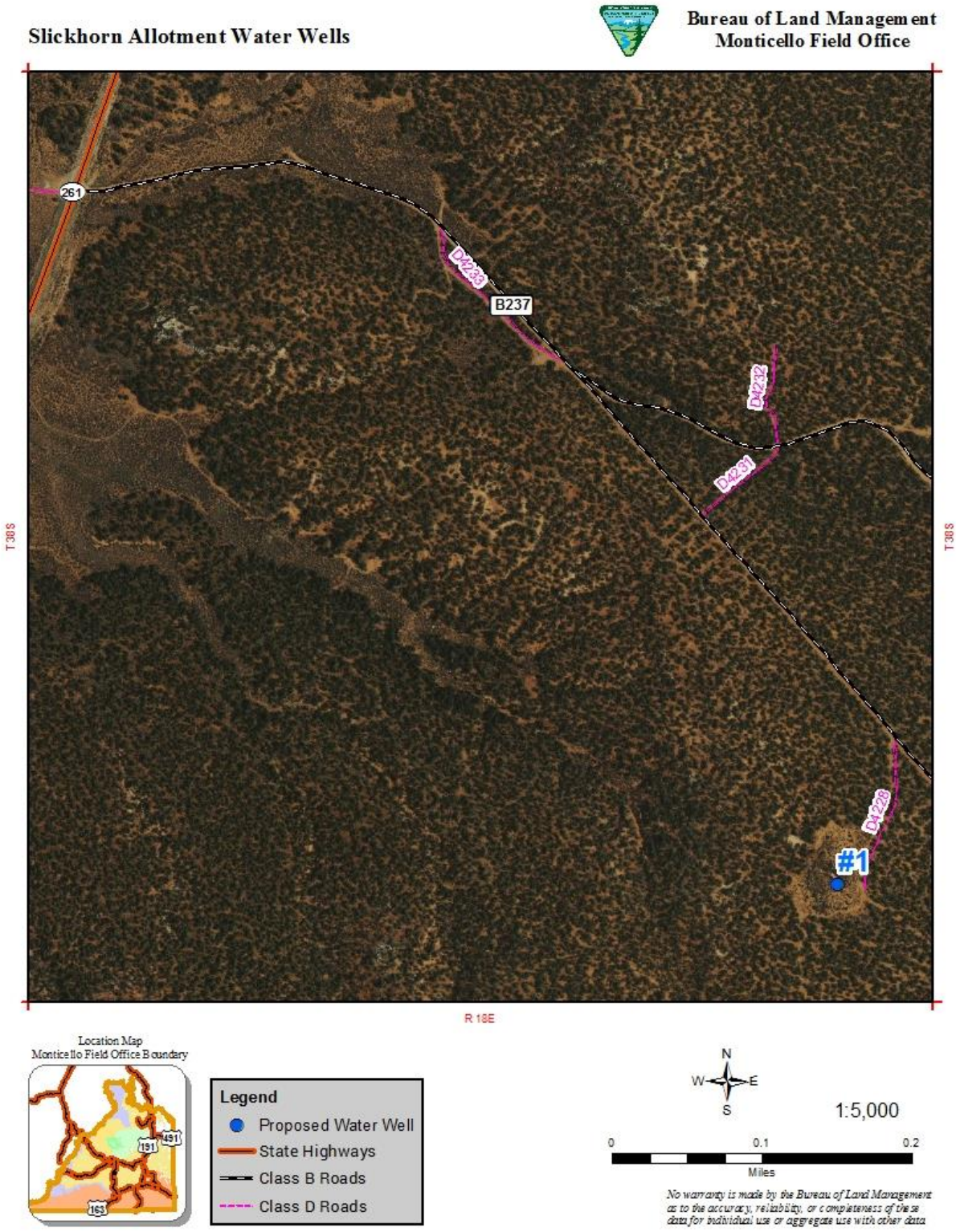
Map 1-General location of the proposed water wells



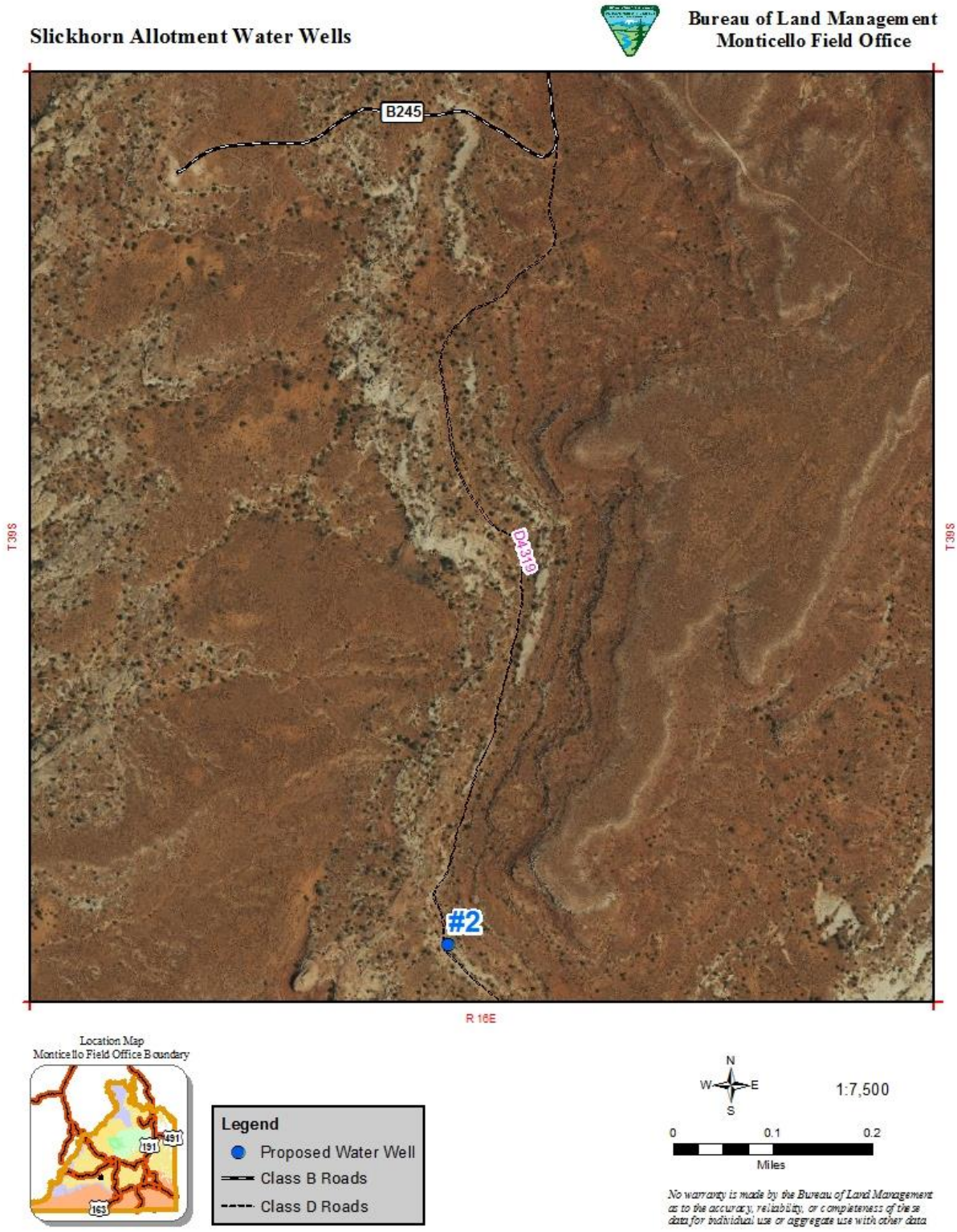
Map 2- Slickhorn pastures where proposed water wells are located and existing water developments



Map 3- Proposed water well #1



Map 4-Proposed water well #2



Map 5- Proposed water well #3